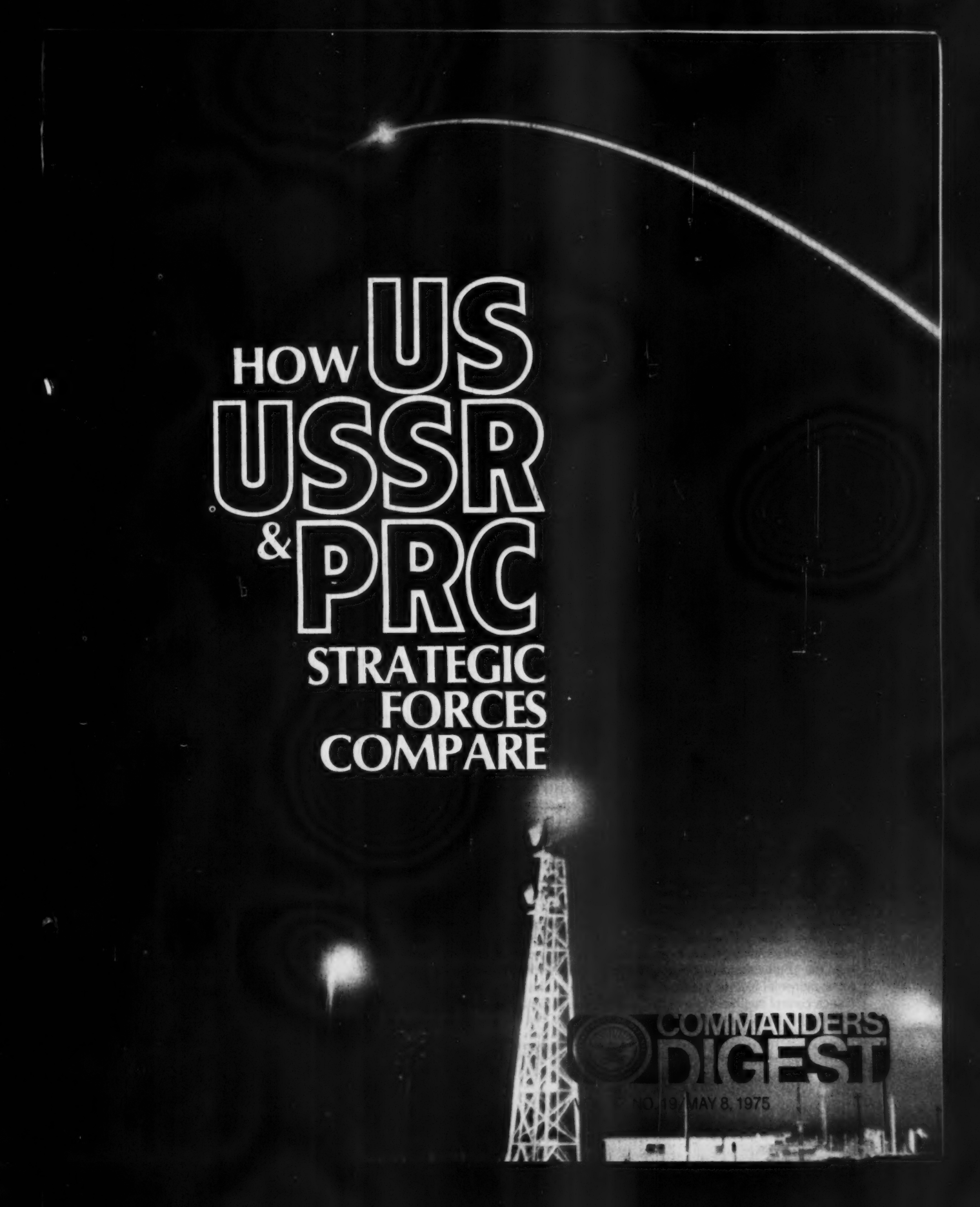

HOW US
USSR
& PRC
STRATEGIC
FORCES
COMPARE
COMMANDER'S
DIGEST
NO. 19 MAY 8, 1975

Over the years, the Secretary of Defense and my predecessors have noted that the relative United States strategic power had peaked and was on the decline; that we were approaching parity; and finally, that the balance was in dynamic equilibrium. The static measures of relative military strength today remain in rough equilibrium. But in a technological era marked by giant strides in both science and engineering, we must approach the future with firmness and caution—firmness in our resolve to stabilize the static balance and caution in minimizing the chance of technological surprise.

There is mounting evidence that the Soviet Union is pressing forward vigorously with massive programs for near-term deployments involving every facet of offensive strategic power. At the same time, it is improving appreciably, at a more gradual rate, capabilities for strategic defense and pursuing with firm determination development of advanced technology appropriate to the entire strategic equation.

The Soviet Union's focus is not simply on maintaining the current advantage in terms of megatonnage and throwweight, but it applies as well to accuracy, flexibility, survivability, and MIRVing intercontinental missiles.

At the SS-9 complexes, work is underway which will permit the deployment of the heavier, more accurate, and more lethal SS-18. SS-11 silos have been or are in the process of being prepared for the SS-17 and the SS-19. Both are MIRVed, more accurate, have increased throwweight, and are more survivable than the SS-11s they are designed to replace. The SS-X-16 is judged to have appreciably greater throwweight and accuracy than the SS-13 it apparently will replace. It has many indications of being deployable as a mobile system as well.

The SS-7 and the SS-8 appear destined for replacement under the terms of the Interim Agreement by modern, probably improved, SLBMs (submarine launched ballistic missiles), perhaps with multiple warheads displaying greater accuracy, although their throwweight and yield are somewhat reduced. These SLBMs will be deployed, not on the modern Delta submarine alone, but upon a modified "super" Delta carrying many more missiles than the 12-tube standard Delta. Hardened intercontinental ballistic missile (ICBM) launch control facilities have been constructed and the program continues. A new airborne command post is probably operational. The multi-purpose Backfire bomber is entering the operational force. Research and development continues. On the defensive side, the Soviet Union continues to improve the capability of current forces. It is deploying improved equipment such as the MIG-25 interceptor, a product-improved SA-5, and new warning facilities. Research continues on new anti-ballistic missiles (ABMs). Each of these systems and the U.S. program will now be examined in some detail.

A COMPARISON OF US & USSR & PRC STRATEGIC FORCES

By
Gen. George S. Brown, USAF
Chairman, Joint Chiefs of Staff

U.S.-U.S.S.R. ICBM Forces

Placing the ICBM balance in proper perspective requires a brief conceptual consideration of the legal constraints upon ICBMs flowing from the Interim Agreement on Strategic Offensive Arms which, under the Vladivostok framework, will remain in force until October 1977 when the new agreement incorporating relevant provisions will come into effect.

The Interim Agreement prevents the construction of new ICBM fixed, land-based launchers after May 26, 1972, and limited the conversion of the then existing silos to modernization and replacement which would not increase the existing dimensions of land-based ICBM silo launchers more than 10 to 15 per cent. The agreement also prohibits converting any of the ICBM launchers deployed prior to 1964 (e.g., SS-7, SS-8, and Titan II) or launchers for "light" ICBMs (e.g., SS-11 and Minuteman) into launchers for "heavy" ICBMs deployed after 1964 (e.g., SS-9). The Soviet negotiators refused to agree to a common definition of a "heavy" missile. The United States, however, inserted into the record its understanding that any ICBM having a volume significantly greater than the largest "light" ICBM then operational, i.e., the SS-11, would be considered a "heavy." Other than silo size and the mix of light and heavy missile launchers, there was no limitation on qualitative factors or research, development, or testing.

SS-7 and SS-8

The SS-7 and 8 are both pre-1964 "heavies." Launchers for the 190 SS-7s are deployed at hard and soft sites. The 19 SS-8s likewise are deployed at both hard and soft sites.

The Protocol to the Interim Agreement permits the conversion to SLBMs of ICBMs deployed prior to 1964. It is our belief that all 209 SS-7 and SS-8 launchers will eventually be phased out for this purpose. It should be noted, however, that in June 1974, in the Standing Consultative Commission (SCC) established by the Strategic Arms Limitation (SAL) undertakings, the U.S. and U.S.S.R. agreed to notification requirements and deactivation procedures which are to be implemented as replacements are undertaken. No such notification as yet has been given nor has there been compliance with the extensive dismantling/destruction requirements. We have every reason to believe that the U.S.S.R. will comply when the time for compliance arrives.

SS-9

The SS-9 is a very large liquid-fueled missile with a combination of accuracy and yield giving it a significant capability to destroy silos, command and control facilities, and other hard targets. There are four variants of this missile. All have single warheads except the MRV MOD 4, which has three. The MOD 3 remains an enigma. It has been tested in both a depressed trajectory and in a fractional orbital (FOBs) mode. There has been no known test of this system since August 1971, and we entertain considerable uncertainty as to its precise capabilities and the extent of its deployment. Nonetheless, we do not believe it has been deployed to any of the regular SS-9 operational complexes.

MOD 4 flight tests resumed in 1973. None were detected in 1974. There is no known reason for the 1973 resumption of

testing, but the absence of any test in 1974 suggests either that the 1973 effort achieved some research and development objectives or that the testing supported a new program which, for other reasons, was discontinued.

There were originally 288 SS-9s deployed. Some of these silos already have been converted to launchers for more advanced missiles and other silos are now undergoing conversion.

SS-11

The two-stage SS-11, operational since 1966, remains the most extensively deployed Soviet ICBM. It has been subjected to extensive troop testing, including over 100 launches from operational silos. There are three versions of this liquid-propelled weapon, none of which employ a sufficient combination of accuracy and yield to constitute an effective threat to either Minuteman or any other hard target.

Lack of identifiable operational testing led us to believe that the MOD 2 program had been terminated. Recent firings suggest crew training, and indicate that deployment possibly may have been initiated. Like the MOD 1, this is a single warhead weapon, but it also has been tested with penetration aids designed to assist the penetration of an anti-ballistic missile (ABM) system. The MOD 3 has 3 MRV warheads. We believe that MOD 3s already have been deployed in the silos under construction at the time the Interim Agreement was signed. The remainder of the force is composed of MOD 1s.

SS-13

The last of the previously displayed Soviet missiles shown on Chart 2 is the SS-13. This missile has been operational since 1969 and utilizes a solid propellant. Sixty of these missiles currently are deployed. It is estimated that it will be replaced by the SS-X-16, a weapon much more accurate than the current system.

COMPARISON OF US AND USSR ICBMs

US

USSR

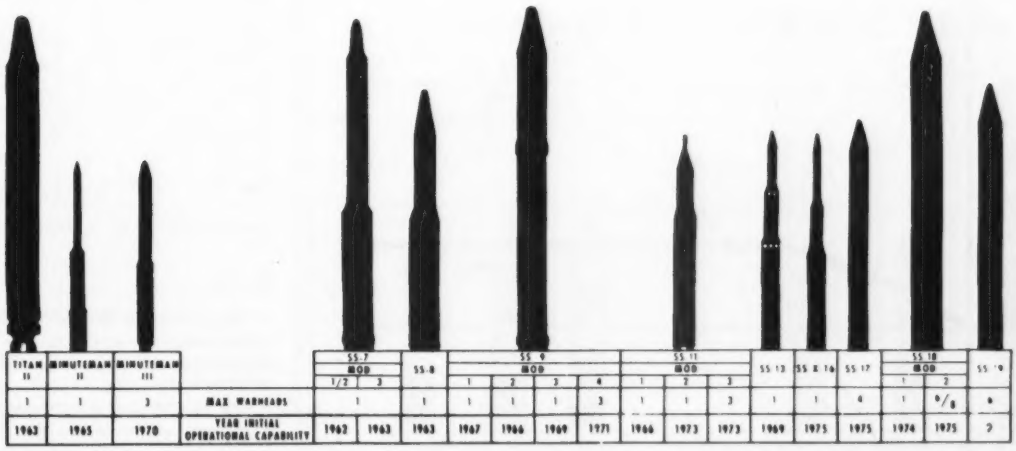


CHART NO 1

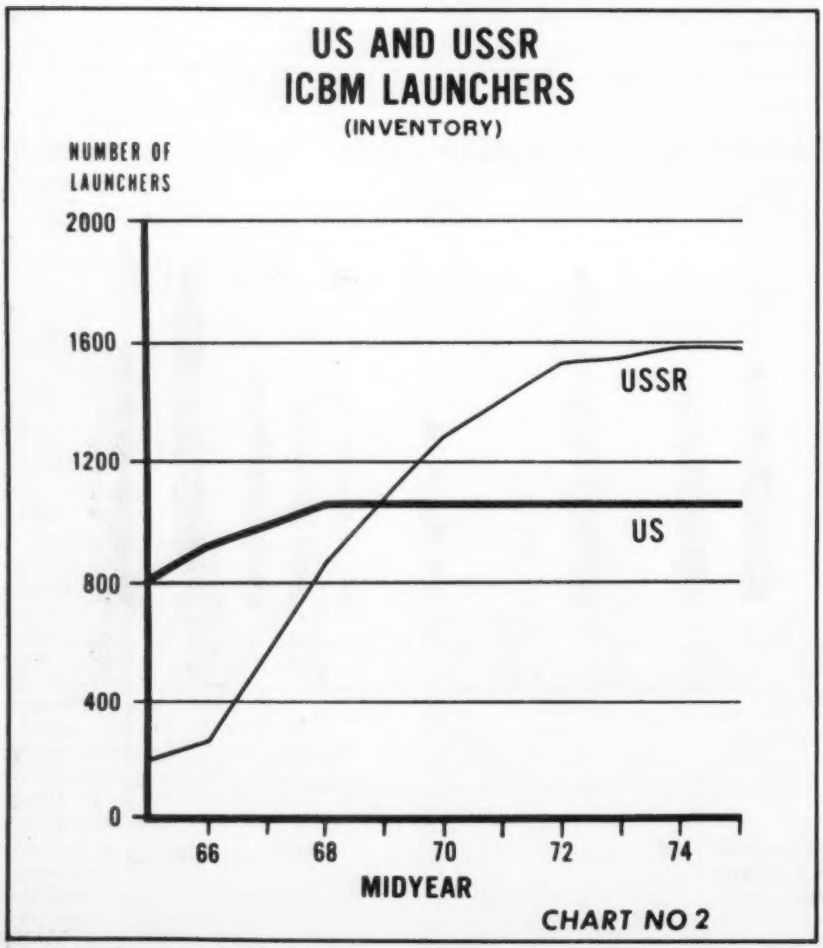
This chart presents scale drawings and individual characteristics of the U.S. and U.S.S.R. ICBMs currently deployed or undergoing flight tests.

SS-X-16

The SS-X-16 utilizes a solid propellant. Apparently there had been some difficulty with this missile. It is believed now that the difficulties have been overcome. In December, two SS-X-16s were launched to the Pacific test range—4,200 nm.

The SS-X-16, with much greater throwweight than the SS-13 and an advanced navigation guidance system, has a post-boost vehicle traditionally associated with dispensing MIRVs, but to date has been tested only with a single warhead. It is expected to replace the SS-13. The single warhead version probably may be operational this year. A MIRV version also may be deployed, but not until at least a year after testing begins. The anticipated SAL undertakings may constrain the MIRVing of this missile.

There is, however, a more serious question associated with the SS-X-16.



Circumstantial evidence continues to indicate that this weapon is being developed as a land-based mobile system. Its deployment is probably dependent on the outcome of the more comprehensive agreement under negotiation as well as successful development. Senior officers of the Soviet Strategic Rocket Force have spoken constantly of their mobile and invulnerable force; however, throughout the negotiations leading to the Interim Agreement, the Soviet Union rejected U.S. efforts to ban deployment of land-mobile strategic offensive systems. Since we were unable to achieve any constraint on such systems, the United States delegation stated unilaterally that we "would consider the deployment of operational land-mobile ICBM launchers during the period of the Interim Agreement as inconsistent with the objectives of that Agreement."

It is against this background that the evidence of development and/or deployment should be examined.

Soviet strategic policy is shaped by a maze of complex considerations. There are many competing factors which will determine whether a mobile system will be deployed. Those favoring deployment include: increased survivability; projection of an image of Soviet strength; a hedge against lapse of the Interim Agreement; institutional momentum and sunk costs; and a bargaining chip in future negotiations. The Vladivostok framework will permit the deployment of ground-mobile ICBMs, but they will be included in the 2400 launcher cap. Reliability, accuracy, and availability are reduced considerably by the problems inherent in mobility, while operating costs, in cluding maintenance, security, and positive control, are substantially higher than those associated with fixed deployment.

SS-17

This is a liquid propellant ICBM. The system employs a sabot "cold" launch technique with main engine ignition outside of the silo.

We believe that the missile dispenses four MIRV warheads from a post-boost vehicle. It is estimated that the missile will become operational in 1975.

SS-18

The SS-18 is a large liquid propellant "cold" launch ICBM comparable in volume to the SS-9. We have identified two variants of this missile. The over 5,500 nm MOD 1 system employs a sophisticated version of the traditional

Soviet "fly-the-wire" control system with an on-board digital computer. This missile, with much greater destructive power than Titan and improved accuracy, is capable of destroying any known fixed target. This variant is now operational, while the MOD 2 test program is proceeding at a somewhat slower pace. The MIRVed version has dispensed at least six RVs and is believed capable of deploying as many as eight warheads to a range of 5,500 nm. This missile could be operational in 1975.

SS-19

The SS-19 is a "hot" launched liquid propellant missile, which was first tested in April 1973. Its throwweight is three to four times that of the SS-11, and it is much larger in volume. Its guidance system combines navigation with a refinement of traditional Soviet "fly-the-wire" guidance technique. An on-board computer determines deviation from the preprogrammed course and directs correction to that course or plots a new course to the target depending on the attendant circumstances. It is believed that this missile is capable of delivering, at a range of 5,000 nm, six MIRVed warheads. The SS-19 now may be starting to be deployed in operational silos.

It was reported last year that there was some question as to whether both the SS-17 and the SS-19 were to be deployed; that it appeared the "17" was the most advanced vehicle; and that neither would be operational prior to 1975. It now appears that we again underestimated the scope and the intensity of the Soviet program.

Follow-on Systems

There are indications from diverse sources which, in combination, lead to the conclusion that the U.S.S.R. is not completely satisfied despite the significant improvements in force effectiveness displayed by the four new systems. It appears that their research and development (R&D) effort has momentum which will continue.

Launcher Inventory

Projected on Chart 2 are our latest estimates of U.S.-U.S.S.R. ICBM forces through mid-1975.

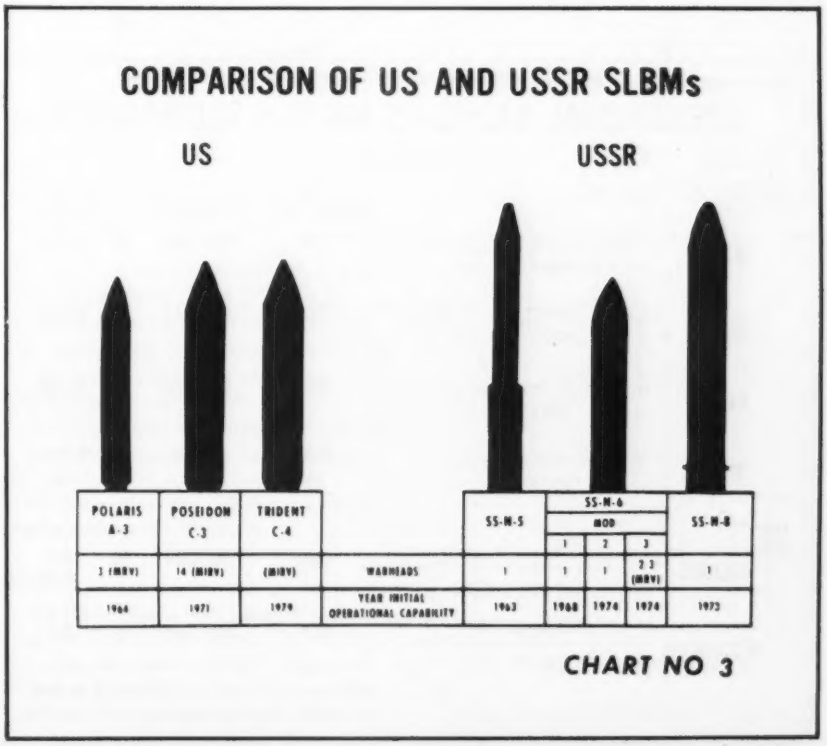
In this connection, it is essential that a very fundamental premise be understood. This chart and all those that follow are based upon the assumption that the relevant numerical limitations imposed by the Interim Agreement will remain in effect through October 1977 and that the 2,400 and 1,320 Vladivostok numbers will be implemented.

This chart and the quantitative ones that follow were developed in order to facilitate measuring the strategic balance. There is a considerable amount of professional judgment involved in both the measurement and the selection of criteria to be measured. I would urge in your consideration of the evidence that weight be given to each element, but that no single element be considered in isolation from the other qualitative and quantitative measures of the balance.

We estimate that the U.S.S.R. at mid-1975 will have 1,591 ICBM launchers.

Whatever the underlying motivation, it does not appear that they expect negotiations to negate their near-term deployment plans. It is our best estimate that the demonstrated rapid modernization of the U.S.S.R.'s ICBM force will continue.

With regard to United States ICBMs, I have no dramatic program to present. No new ICBM system is currently under engineering development, although we are seeking to develop the technology which will allow us to improve our posture in a timely fashion if we are unable by



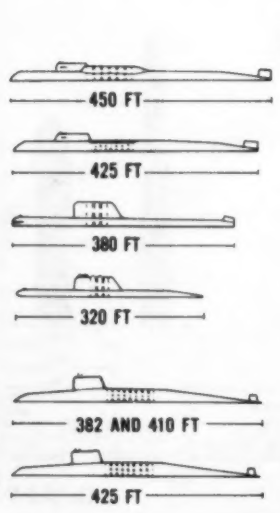
negotiations to arrest the strong Soviet underlying momentum short of significant strategic superiority. To this end, we are exploring the opportunity to increase the yield of the Minuteman III warhead. Likewise, we are seeking to develop the technology necessary to increase the number of warheads on Minuteman III. Furthermore, we expect to continue to search for software and other improvements which further will mature the Minuteman guidance system and improve the system's accuracy. We also are looking at terminally guided maneuvering reentry vehicles (MaRV) for possible deployment with ICBMs and SLBMs.

The advanced ICBM technology program was converted in FY 1974 to an integrated development program, combining system concept studies and technology developments, to provide the basis for a new ICBM should such a vehicle become necessary. The program goals are to enlarge its throwweight over that of Minuteman and to increase its survivability through further hardening or by making the system ground or air mobile.

The last Minuteman I has been deactivated. Minuteman IIs are being replaced by Minuteman IIIs to reach a force mix of 450 Minuteman IIs, 550 Minuteman IIIs, and 54 Titan IIs.

In FY 1976, we plan to continue the advanced technology approach we have been pursuing with the M-X Advanced ICBM. This initiative will provide the necessary hedge against the unknowns in the strategic environment of the mid-1980s. A decision to enter engineering development of, or to deploy, the M-X Advanced ICBM is several years away; and it will be based upon a continuing assessment of both SALT progress and the state of Soviet military developments.

OPERATIONAL BALLISTIC MISSILE SUBMARINES



	YEAR OPERATIONAL	PROPULSION		MISSILE
D CLASS	1973	NUCLEAR	12	SS-N-8
Y CLASS	1968	NUCLEAR	16	SS-N-6
H CLASS	1960	NUCLEAR	3	SS-N-5
G CLASS	1960	DIESEL	3	SS-N-4/5
US POLARIS	1960	NUCLEAR	16	A-3
POSEIDON	1971	NUCLEAR	16	C-3

CHART NO 4

U.S. and U.S.S.R. SLBM Forces

The Interim Agreement limits SLBM launchers and modern ballistic missiles to the number operational and under construction on May 26, 1972. On that date, the U.S. construction program had terminated and we operated 41 SSBNs, each with 16 launch tubes, for a total of 656 launchers. The parties were, however, unable to agree as to the number the U.S.S.R. would be permitted under this formula. Due to this uncertainty, it was necessary to conclude a Protocol establishing a negotiated artificial ceiling. It was agreed that the U.S.S.R. "had" 740 ballistic missile launchers on nuclear-powered submarines, operational or under construction, as of May 26, 1972.

Also, the Agreement permitted additions to each SLBM/SSBN force subject to two constraints: First, the quantitative growth of the force was conditioned upon dismantling (a) an equal number of ICBM launchers initially deployed prior to 1964 (SS-7s and 8s, Titans); (b) SLBM launchers on older nuclear-powered submarines (Hotel and Yankee, Polaris/Poseidon); or (c) "modern" SLBM launchers on any type

submarine. Second, there was an absolute upper limit of 62 modern ballistic missile submarines and 950 SLBMs for the U.S.S.R. and corresponding numbers of 44 and 710 for the United States. Under the Vladivostok understanding, these numbers remain valid only through October 1977, when they will be subsumed within the 2,400 total strategic vehicle and 1,320 MIRV limitation and will no longer operate as submarine/SLBM limits.

Chart 3 provides a comparison of U.S. and U.S.S.R. SLBMs. Even though the Trident C-4 is still not operational, I have included it because of its continued importance to the future of the strategic balance.

SS-N-5

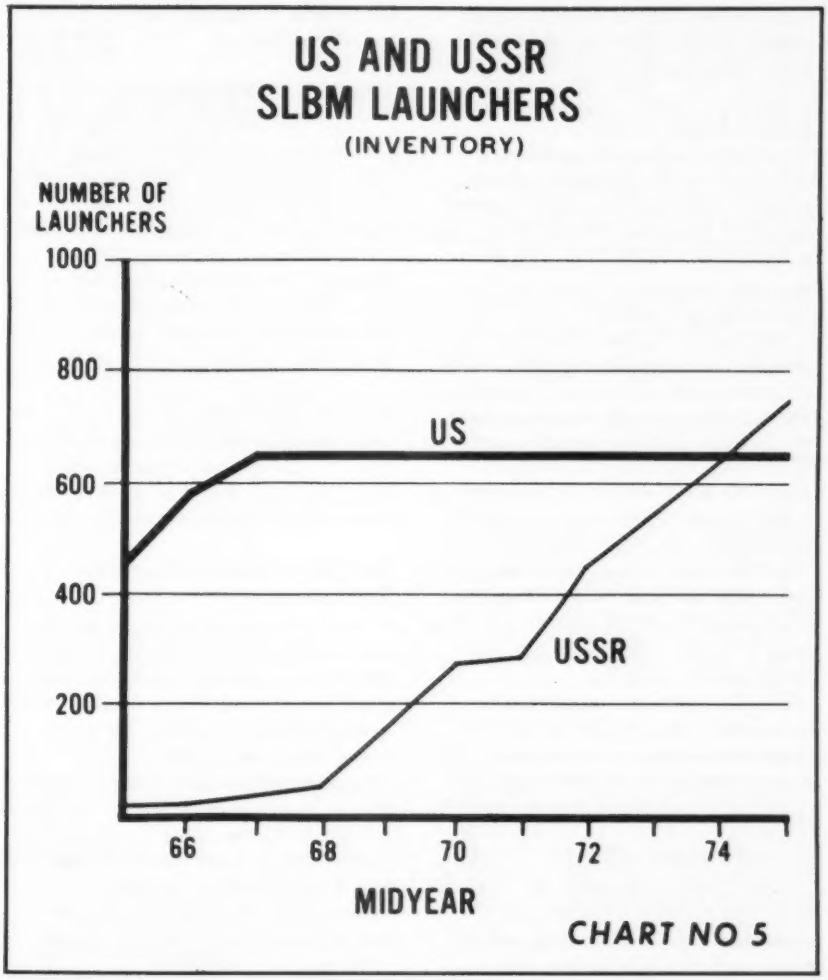
The SS-N-5 first entered the Soviet force in 1963. It has a relatively short range (700 nm). Nonetheless, because of the warhead size, it is an effective weapon against soft targets such as centers of mass population. There are currently 24 SAL accountable operational launchers for these missiles; however, we expect that they all will be deleted from the inventory as a result of the continuing modernization momentum.

SS-N-6

The SS-N-6 first entered the Soviet naval inventory in 1968, and at present, is the most widely deployed Soviet submarine-launched weapons system. As indicated, it has three separate operational variants and we estimate that they are relatively interchangeable. All are liquid-fueled. The MOD 1 is a single warhead weapon with a range of 1,300 nm. It is expected that the SS-N-6 system will be phased out as the modernization momentum continues.

In October 1972, flight testing began on a modified version of the SS-N-6. This system, the MOD 2, reached an initial operational capability (IOC) in 1974. The most significant modification was in the propulsion system, resulting in a 300 nm increase in range to 1,600 nm. We believe that the SS-N-6 is now capable of reaching any target in the United States from the 100 fathom curve off the coasts of the United States. This missile also is expected to be withdrawn in favor of more effective systems.

The SS-N-6 MOD 3 represents a further development in Soviet missile technology.



This 1,600 nm weapon carries MRVs and probably reached IOC in 1974. These warheads are not independently targeted. The combination of yield and accuracy for all versions of the SS-N-6 limits its effectiveness to soft targets.

We believe that the current level of 544 launchers for this missile, some of which are MRVs, will remain in the Soviet inventory until a new SS-N-6 sized missile begins to enter the inventory.

SS-N-8

The SS-N-8 has a much greater volume than the SS-N-6 and reached IOC in 1973. It is a liquid-propelled missile capable of delivering a single warhead to a range of 4,200 nm. This weapon remains unique in two particulars. It exceeds, by at least

1,600 nm, the range of any other SLBM currently deployed by either the U.S.S.R. or the United States.

U.S. SLBMs

The older, single warhead Polaris A-2 missile now has been phased out of our deployed inventory completely. Only the Polaris A-3 (three MRVs) and the MIRVed POSEIDON C-3 missiles are currently at sea. Both are two-stage, solid-propellant, inertially-guided missiles.

The Trident C-4 missile has been designed with range characteristics which will permit basing in the United States without sacrifice of alert rate and which will permit an operating area increase of at least 4 times that which we currently enjoy. We are, however, asking to continue a small parallel advanced development effort to provide an option for the early 1980s for major accuracy improvement as well as the advanced development of an evading reentry vehicle (MaRV) as a hedge against Soviet actions to upgrade their SAMs to ABM capability.

The IOC of the new missile is planned for late 1977 and will coincide with the completion of the first Trident submarine. It is on schedule. As you will recall, it is virtually interchangeable with the Poseidon C-3 and will be backfitted into 10 such submarines beginning in 1979.

Turning now to the launch platforms for these missiles, Chart 4 displays the four operational Soviet sublaunched ballistic missile platforms and the U.S. Polaris Poseidon submarine.

U.S.S.R. Submarines

GOLF (G class)

The Golf is a diesel-powered submarine and represents the first Soviet submarine class to have been built from the keel up to launch ballistic missiles. The lead ship was completed in 1958 and became operational in 1960. The 20 operational Golf submarines are not counted in the SAL limits. The class is included here only in the interest of completeness.

HOTEL (H class)

Nine Hotel-class submarines originally were built. This submarine is a nuclear-powered vessel capable of firing three SS-N-5 missiles. We believe eight such units are now operational.

YANKEE (Y class)

This 428-ft class is similar in concept, size, and layout to the United States' Lafayette-class SSBN. Missile tubes sized for the SS-N-6 are arranged in two rows of eight. The lead ship reached IOC in 1968.

There is reason to believe that production of the Yankee has terminated. These 34 units, with their 544 launch tubes, are expected to constitute the bulk of the Soviet force for some years to come.

DELTA (D class)

The latest Soviet SSBN to be deployed is the 450-ft Delta, which began patrol in mid-1974. This submarine has 12 launch tubes capable of handling the SS-N-8.

Lengthened DELTA—Class Submarines

The Soviet Union has announced that they intend to build to the full extent of the Interim Agreement limits. We believe that they will build a force close to the 62 modern submarines and the 950 sea-launched ballistic missiles (SLBMs) allowed. In order to do so, at a reasonable cost, a larger launch vehicle for the SS-N-8 is required. Further, there is evidence that the U.S.S.R. soon will launch the first of a lengthened version of the Delta— a "super" Delta. This added length will permit the installation of more launch tubes than the standard Delta.

U.S. SSBNs

The United States currently operates five classes of SSBNs. The two lead Polaris classes of five ships each, because of their size, cannot be converted to either the Poseidon C-3 or the Trident C-4 missile. These ships average 14 years old. The other three classes are being converted to Poseidon C-3 configurations. Conversion is complete on all but eight of these 31 vessels. These, too, will be converted by early FY 1978.

The Trident submarine is designed to employ 24 missile tubes, and yet will be faster and quieter than the Poseidon. By the end of 1978, we hope to have Trident operational.

Prior to summarizing the quantitative SLBM balance and estimating the future forces, it is important to note one further qualitative factor bearing on the relative effectiveness of the forces. The readiness of a force, particularly the SLBM force, is related clearly to the capability to maintain the material condition of individual submarines at an acceptable level by regular and timely overhaul. The average period for overhauling a U.S. nuclear submarine is much less than in the U.S.S.R.

The current projections of U.S. and U.S.S.R. SLBM launchers operational or on sea trials are shown on Chart 5. SLBMs on sea trials are included because of the structure of the Interim Agreement—the dismantlement of older systems must be initiated when sea trials begin for any new SLBMs.

We estimate that by mid-1975, the Soviet Union will have a total of 700 missile launchers on 52 nuclear-powered submarines. The U.S. force will be composed of 656 missiles on 41 SSBNs.

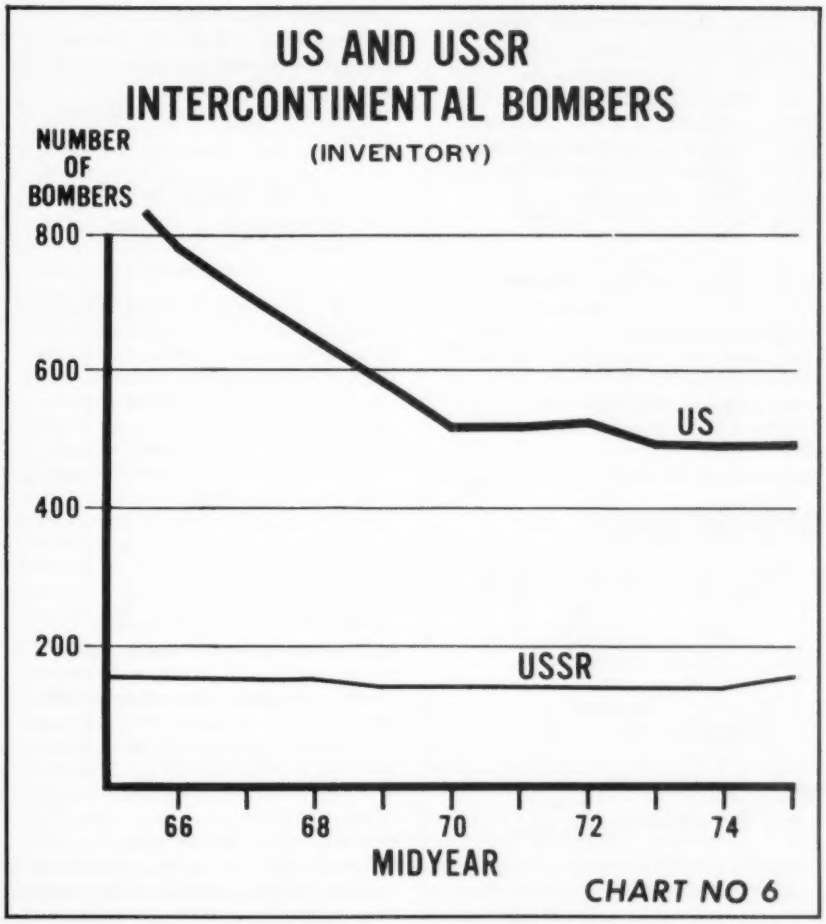
U.S. and U.S.S.R. Strategic Bomber Forces

Chart 6 shows U.S. and U.S.S.R. Strategic Bomber Forces projected through mid-1975.

U.S. Bombers

More than a decade ago, we identified the requirement to modernize the manned bomber portion of our strategic deterrent forces. The B-1 has been designed as an extremely versatile aircraft capable of performing in hostile environments with a high degree of safety and mission success probability. Its variable-geometry (swing) wing will permit it to use shorter runways and to maximize performance at altitude and speed extremes. The radar cross section has been reduced greatly over the B-52. It will get into the air in far less time than is required by the B-52 and will carry about twice the weapons load over the same intercontinental distances. Armament planned for the B-1 includes the short range attack missile (SRAM), both nuclear and conventional bombs, and special electronic countermeasures designed to assist in the penetration of the most sophisticated defenses we can project into the 21st Century.

The B-1 began flight testing late last December. A production decision will be made in late 1976 subsequent to detailed performance evaluation of the three prototype aircraft now scheduled for



construction. The B-1 will provide the Nation with capabilities far beyond those currently provided by the B-52 and FB-111. It also will have important qualitative advantages over the impressive capabilities of the Backfire, which the U.S.S.R. has deployed recently. I consider the capability of the B-1 as a virtually indispensable element of our deterrent force and urge your continued support of this essential program.

Until the 1980s, when the B-1 would enter the inventory in significant numbers, the B-52 and the FB-111 will continue to constitute the United States intercontinental bomber force. The structural modification program for the B-52Ds in order to maintain this force level is on schedule. Wing strength testing began in October 1974. By September 1976, we expect to have completed the required partial reskinning of the wing and fuselage.

U.S.S.R. Bombers

The new Soviet variable-geometry wing bomber, Backfire—under testing since late 1969—is now entering the operational inventory. With inflight refueling and staged from Arctic bases, Backfire could cover virtually all of the United States on two-way subsonic missions with limited low-level penetration. Staging from the Chukotsk Peninsula, the unrefueled radius would cover the Western United States in an arc generally extending from the western U.S.-Mexican border to the eastern tip of Lake Superior. On one-way missions, recovering in friendly or neutral territory, the Backfire is capable of delivering weapons anywhere in the United States without refueling. Carrying air-to-surface missiles (ASMs), the Backfire would have somewhat reduced capabilities, but the potential range of the ASM would produce comparable target coverage. Tanker support would be required for intercontinental missions involving supersonic dash or extended low-altitude operations. In this connection, it should be recalled that while some 50 of the Bison aircraft are tankers, the other bombers could be converted eventually to tankers. Bison probably could refuel Backfire, and all the Backfires produced are believed to have a refueling probe. Further, there is some evidence that the Soviet Union is developing a tanker variant of the IL-76 Candid jet transport.

At any rate, the Backfire is a versatile, multipurpose aircraft capable of performing nuclear strike, conventional attack, antiship, reconnaissance, and electronic warfare missions. It has extensive capabilities for various types of peripheral missions against NATO Europe and the Peoples' Republic of China (PRC). Unrefueled, it probably is best suited for that role. Its intercontinental capabilities cannot be prudently ignored, particularly in the face of thinning U.S. air defenses.

Chart 6 reflects only long-range bombers. Intermediate-range bombers are omitted from the force displayed here, notwithstanding the fact that some of them have a potential intercontinental strike capability if Arctic staging and one-way flight profiles are used. We do not know precisely how the Soviet planner intends to utilize the Backfire weapons system. Evidence derived from basing, operational activities, and training patterns ultimately will answer this question. This is an excellent example of why I believe we must deal realistically with demonstrated capabilities, not perceived intentions. The Soviet general staff could change the Backfire mission in a matter of hours, if not minutes; but preparing a defense against such an increased threat could require years.

Our ability to detect Soviet aircraft at the developmental stage prior to the rollout of a new prototype is limited. Continued development of Backfire indicates a continuing interest in the bomber as a strategic weapons system.

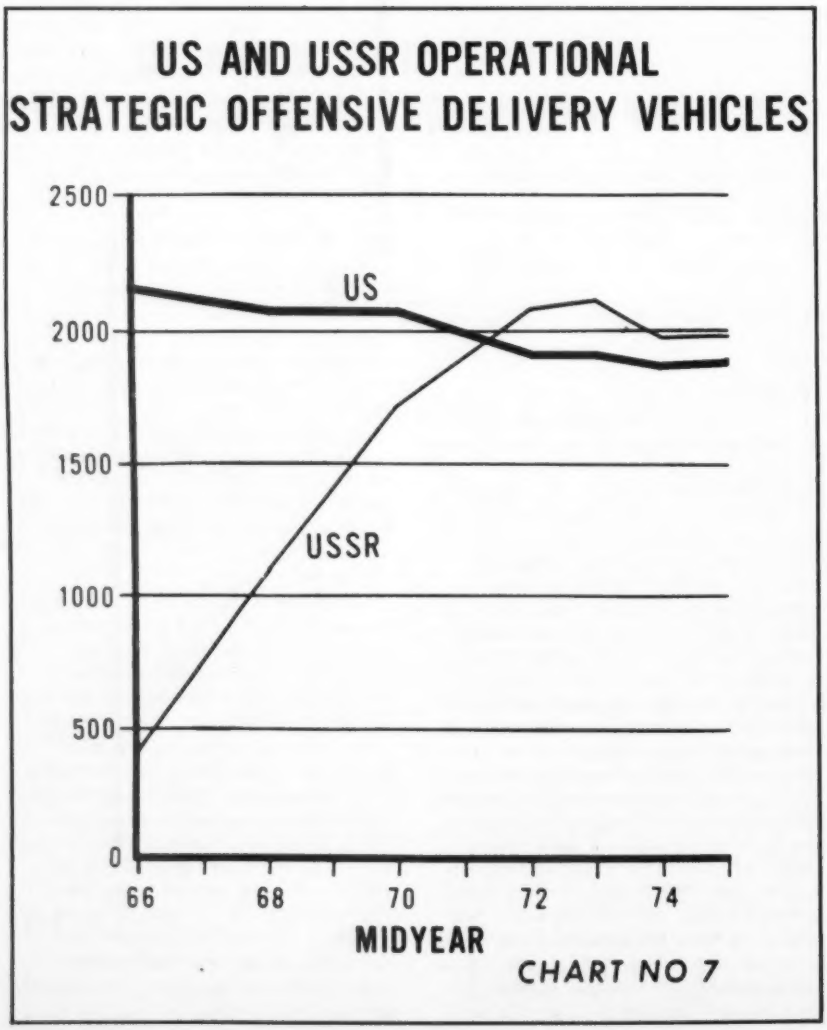
The Backfire, an improved version thereof, or a new bomber with increased range and payload probably would satisfy new bomber requirements through the 1980s. We have no evidence of such a new system. The design of any new Soviet bomber would be tailored to the Soviet Union's perception of its requirements. If the U.S.S.R. decides to develop a new long-range bomber, we would expect to become aware of its existence a number of years prior to its IOC.

U.S.S.R. Air-to-Surface Missiles

In the event of a strategic attack against the United States, we believe the U.S.S.R. would employ stockpiled nuclear bombs with a wide range of yields. In addition, the Bear B and C carry the large AS-3 Kangaroo air-to-surface guided missile. We believe that an air-to-surface missile is being developed for the Backfire.

U.S. Air-to-Surface Weapons

On the U.S. side, a new bomb is now in engineering development. A mixed air-launched cruise missile/SRAM force will complicate Soviet defensive planning, extend bomber range, and provide increased coverage for lower priority undefended targets. Furthermore, the decisions to equip B-52s with Harpoon antiship missiles will add to the ability of strategic aircraft to support interdependently the sea surveillance mission.



U.S. and U.S.S.R. Strategic Offensive Balance

I will now summarize quantitatively the strategic offensive balance between the forces of the United States and those of the U.S.S.R. Quantitative measures are, however, only one segment of the equation; and caution is required in order to avoid over-reliance on any single factor or combination of such factors in making the judgments necessary to a full understanding of the relative power of the United States and our ability to deter attack by the U.S.S.R.

Alert rate, command, control, communications, attack warning, survivability, systems reliability, range, penetration capability, and accuracy are among the many factors not subject to reasonable quantification which play a very significant role in assessing balance. I have noted in the preceding analysis some of these factors and will address others in subsequent parts of this discussion. I have retained the four general measures—delivery vehicles, megatons, warheads and throwweight/payload—which have become traditional in this presentation. Only those weapons readily available for employment are displayed.

Chart 7 reflects the fact that the U.S.S.R. has surpassed us in the number of delivery vehicles.

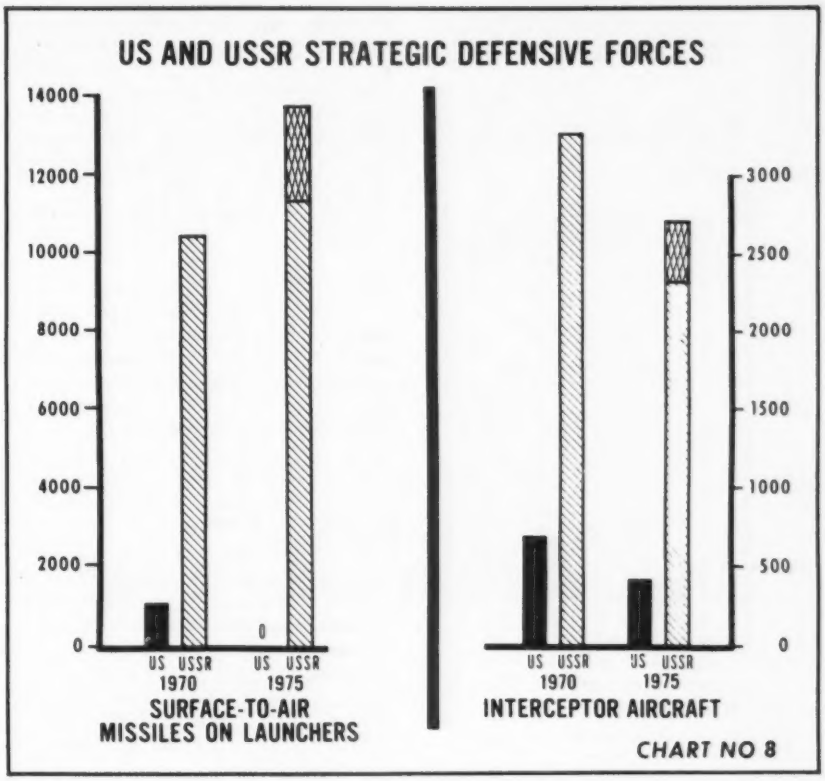
The principal significance of this small lead is in historical perspective. Less than a decade ago, the United States enjoyed a 5 to 1 lead. Balanced bomber construction, the restraints on new construction imposed by the Interim Agreement, and the reduced availability resulting from the intensive silo modernization program now underway in the U.S.S.R. should ensure that the Soviet lead is not widened substantially over the period of this report.

Strategic offensive megatonnage is a very gross measure of the balance. The greater the Soviet effort to modernize and to MIRV, the more rapidly its total megatonnage will fall. This is also the explanation for the rapid reduction in total U.S. megatonnage from 1970 to date.

The number of strategic warheads and bombs is a very significant measure of the balance. Mr. Brezhnev has been quoted as stating "Warheads—not launchers—kill." This fact adds a degree of importance to the relative number of warheads. Last year, it was believed that even if the Soviet Union pursued a program of rapid modernization, our substantial lead could be "diminished but not eliminated." It is now clear that this judgment understated both the breadth and intensity of the Soviet effort to surpass the United States in this measure of the strategic balance.

If the Soviet Union continues its present rapid modernization effort, the substantial U.S. advantage will be lost by mid-1979. Unless we initiate new programs or restrain this massive Soviet growth by the ongoing arms control negotiations, we reasonably may expect the Soviet Union to dominate this measure of the balance. If, as the Secretary has indicated, they are attempting to develop a hard-target kill capability, a numerical advantage of even 1,000 warheads has considerable strategic significance.

I suggest that the continual growth of Soviet throwweight is an important consideration. The weight of that part of the missile above the last boost stage and representative loadings of aircraft are referred to as throwweight and payload. Notwithstanding a 2 to 1 advantage, the U.S.S.R. appears to be building an even greater advantage. It may be that this superiority will exceed even 3 to 1. In spite of the fact that we believe that the heavy SS-7s and SS-8s may be replaced by appreciably lighter SLBMs, Soviet throwweight could continue to grow as each new system deploys greater throwweight than the system it is replacing. The United States is expected to offset this advantage somewhat by continuing to retain a substantial lead in bomber payload. It is essential that we continue Research and Development activities I have noted previously so that we retain the option of deploying a missile with increased throwweight in the event such deployment becomes necessary in order to preserve a viable deterrent.



U.S. and U.S.S.R. Strategic Defense Forces

The strategic equation places great stress on the ordinary meanings attributed to the terms "offense" and "defense." Either type force can be used for aggression or protection. Thus it is clear that if a nation has the ability to destroy a given percentage of a potential adversary's force by a preemptory strike and is able to defend against the remainder, the capability of launching an effective disarming first strike has been achieved. In this arena, a potential adversary's defensive effort must be viewed in the same context as his attack capability if a viable deterrent is to be maintained.

Prior to discussing the relationship between the U.S. and U.S.S.R. defensive forces, it is again necessary to set the stage in terms of the results of agreements on limiting strategic arms. The 1972 ABM treaty limits each party to a relatively small and equal ABM force—originally two sites each of no more than 100 launchers and 100 missiles and a controlled number of associated radars. One site may be centered on the national capital and the other on ICBM silos. The parties also undertook not to develop, test, or deploy ABM systems or components which are sea-based, airbased, space-based, or mobile land-based. On July 3, 1974, we signed, in Moscow, a protocol to the ABM treaty which, upon ratification,

will further limit the U.S.S.R. and the United States to only one such ABM site. Each party, after properly notifying the other, will have the right to dismantle or destroy its current site and to deploy ABMs otherwise permitted in the alternate area. This site exchange may take place during the first year of successive five-year intervals beginning in October 1977, but this option may be exercised only once.

ABM

The Moscow ABM system consists of battle management radars, engagement radars, and Galosh missile launchers. Eight complexes were originally under construction, but only four with 64 missile launchers have been completed. Each operational complex consists of 2 large target-tracking radars, 4 smaller or interceptor guidance and tracking radars, and 16 missile launchers.

This system, which we have designated ABM-1B, includes target acquisition and tracking radars such as Dog House, Chehkhov, and Hen House. It provides little defense against a large-scale or penetration-aided attack. It would, however, provide a credible defense of Moscow and a large portion of Soviet ICBM silos against a small, accidental, or unauthorized attack.

The U.S. Army has completed the Safeguard test program which began at Kwajalein Island in 1970. By April, we expect to reach IOC at the Grand Forks, North Dakota, site. The scheduled equipment readiness date of October 1, 1974 was met and, by October 1975, we expect to have a full operational capability with Spartan long-range and short-range Sprint missile interceptors, a perimeter acquisition radar for acquisition at long-range, a missile site radar for accurate tracking and interceptor guidance, and a ballistic missile defense center to net the system with the CONAD Combat Operations Center.

We thus will be able, within the capabilities afforded by Spartan and Sprint missile interceptors, to provide a terminal defense of a portion of the Grand Forks Minuteman field and a limited area defense against accidental/unauthorized launches in the Colorado/Dakotas region covered by the Spartan footprint. After all subsystems are interfaced and brought to full operational condition, we will be able to validate the total spectrum of the subsystem design, including compatibility with the national command and control structure.

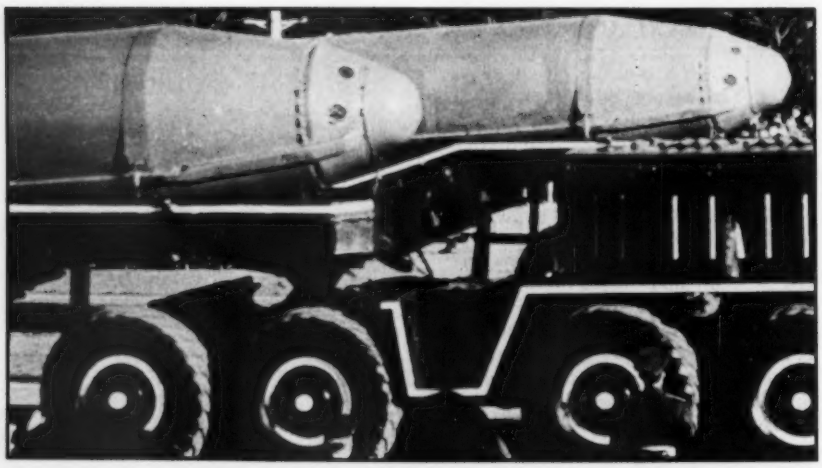
The U.S.S.R. is pursuing vigorously the development of advanced technology applicable to its ABM force.

I do not believe that the U.S.S.R. had deployed its extensive surface-to-air missile (SAM) network to provide ABM defense, nor do I believe that it is currently suitable for that role. I remain convinced that we would be able to detect any program designed to upgrade SAMs to an effective ABM capability, but we must be alert to that possibility.

During the latter part of this decade, the Soviet Union may deploy follow-on systems around Moscow to the level permitted by the ABM treaty.

The Site Defense program is the U.S. effort to maintain an equivalent capability. It provides a hedge to deploy a credible ABM defense for Minuteman to counter the Soviet capability to threaten Minuteman survivability in the 1980s, if follow-on negotiations do not otherwise insure the survivability of a sufficient strategic retaliatory force. We are emphasizing the development of improved subsystems and components, rather than "prototype demonstration," in accordance with guidance of the Congress. In the Advanced Technology Program, we are pursuing a vigorous research effort embracing technology applicable to all components and functions of ballistic missile defense, which must be understood to maintain our technological lead. The objectives of the effort are to provide an advanced technology foundation for future systems, to avoid technological surprise and to assist in the design and evaluation of U.S. strategic offensive systems.

The Interim Agreement of Strategic Offensive Arms, which remains in effect until October 1977, puts building and modification restraints on "heavy" ICBMs. The Soviet negotiators, however, don't agree on a common definition of "heavy."



Air Defense

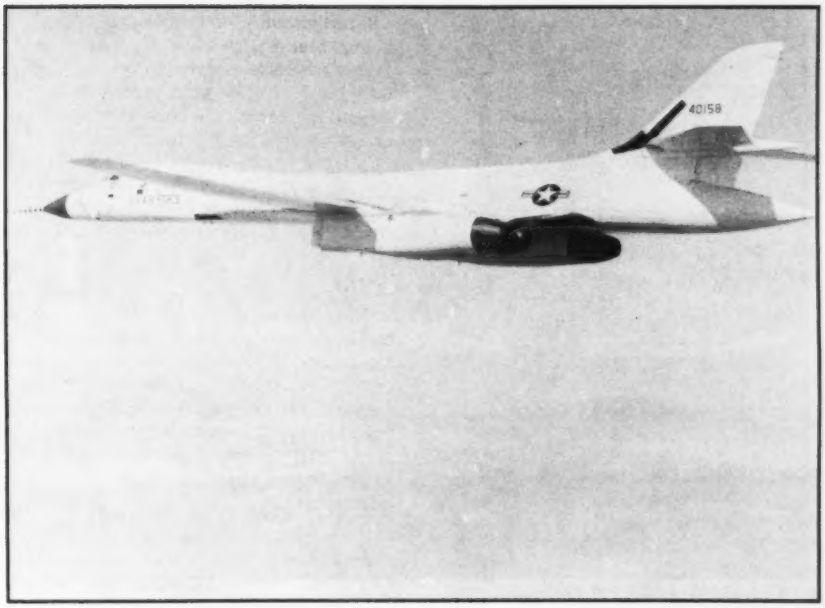
The Soviet Union's strategic air defense is by far the most extensive and expensive in the world. It operates over 4,000 radars located at early warning and ground control intercept (EW/GCI) radar sites, over 2,600 fighter interceptors, and about 12,000 strategic surface-to-air missiles on launchers.

Chart 8 displays the numerical imbalance in the current force structure. However, it must be remembered that many of the currently deployed Soviet air defense systems were designed originally to counter the medium-to-high altitude bomber and stand-off-missile threats represented by the B-70 and the evolving technology of the late 1950s and early 1960s. The force, nonetheless, displays significant capabilities.

Interceptors

The right side of the chart compares U.S. and U.S.S.R. home defense interceptors projected through mid-1975. The Soviet deployment levels have continued their steady decline (about 100 aircraft per year) which began in 1964, but the overall capability of the force continues to mount. Older, largely gun-armed interceptors, such as Fresco (MIG-17) and Farmer (MIG-19), are being replaced by more sophisticated, all-weather interceptors, such as the Foxbat (MIG-25) and Flagon E (SU-15). The Flagon E entered operational service just over a year ago. It employs a new and more powerful propulsion system, which increases both speed and range, and improved avionics in addition to advanced air-to-air missiles. It appears that the MIG-23 (Flogger), a single-engine variable-geometry wing fighter, armed with four air-to-air missiles and an internal gun, also is being prepared for an air defense role.

We expect the Soviet Union to deploy in the 1977-1980 timeframe a new interceptor. In the interim, the U.S.S.R. is expected to continue widening the capabilities of the interceptor force by emphasizing the modification of existing aircraft rather than introducing entirely new systems. The fundamental constraint on Soviet interceptors' effectiveness against low-altitude bombers is that they have not demonstrated the capability of developing a radar capable of detecting and tracking from high altitude a bomber at low altitude against a background of signals reflecting from the ground.



A United States Air Force's B-1 undergoes flight test following its rollout last year. The B-1 can become an integral part of the Triad of manned bombers, ballistic missiles and nuclear ballistic missile submarines.

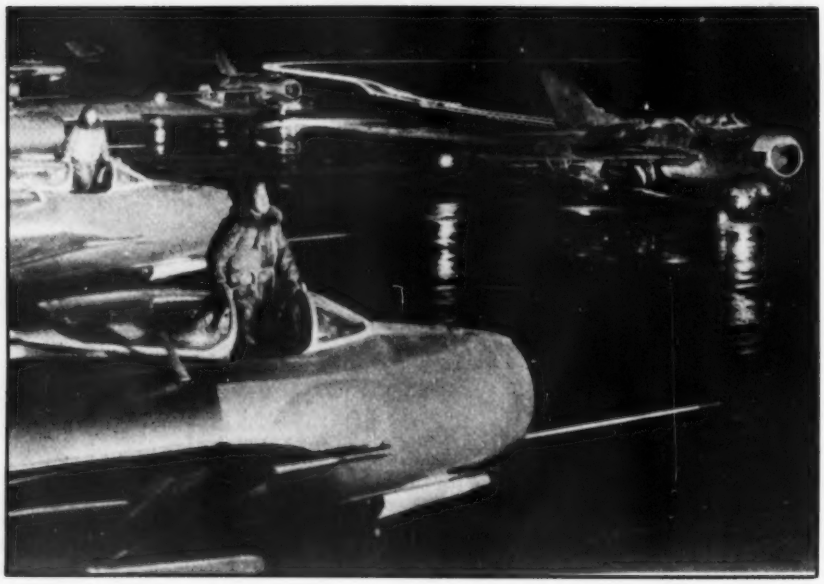
The mid-1975 U.S. operational interceptor force will be composed of 116 F-101s, 56 F-102s, and 233 F-106s. All these interceptors entered the inventory in the 1950s. This force will, however, be 65 per cent Air National Guard. By mid-1980, the force will be reduced to 122 active and 90 Air National Guard F-106s. General purpose augmentation aircraft stationed in the United States, of course, will be available to assist in the air defense mission prior to their deployment to overseas locations.

Shown on the left side of Chart 8 are U.S. and U.S.S.R. home defense SAM forces. The U.S. strategic SAM force was totally deactivated in 1974. There was a slight increase in the Soviet number in 1974.

Soviet Strategic SAM Force

This force is composed of four systems. The SA-1 (Guild) is a liquid-propelled missile first deployed in 1954. We estimate that the mid-1975 level of sites will decrease gradually as Soviet modernization increases.

The SA-2 (Guideline) is the command guided high-altitude missile which the North Vietnamese employed with a reasonable degree of effectiveness during Linebacker II. This system, which was first introduced in 1958, like virtually all Soviet strategic SAM systems, has been modernized during its lifetime with new



Aircraft of the Peoples' Republic of China Air Force taxi during night operations. The air force is equipped with a counterpart of the Soviet MIG-19PF with Izumrud radar inside the nose intake.

versions increasing its range and improving its performance at low altitudes. Some of the guidance systems have been modified with optics, thus providing improved FCCM and low-altitude capabilities. We estimate that the SA-2 force will continue to decline.

The SA-3 (Goa) is a road-transportable, solid-propelled medium- and low-altitude command guided missile employed in both the point defense and barrier role. This system, first introduced in early 1961, is capable of intercepting attacking aircraft at low altitudes within a limited range of the launch site. We estimate that the mid-1975 level of sites will increase.

The latest Soviet strategic SAM system is the SA-5 (Gammon), which was initially operational in 1967. It provides point defense for certain vital areas of strategic importance.

Although not a strategic system, the highly mobile SA-6, employed with notable effectiveness in the recent Middle East hostilities, has impressive capabilities, particularly in dealing with low-altitude attacks.

Despite the size of the Soviet air defense force and the projected improvements, there exists major weakness in low-altitude defense against penetrating bombers and in defense against the U.S. short-range attack missile. This will require the U.S.S.R. to attempt to attack and destroy the SRAM carriers as early as possible. Early detection is indispensable to this effort.

The Moss aircraft noted in this statement over the past several years still provide the U.S.S.R. with its limited airborne controlled intercept (ACI) capability. The aircraft has worked in overwater exercises, but is unequal to the more challenging overland task. If the U.S.S.R. intends to improve its air defense, a new airborne warning and control aircraft system, a better radar network for GCI, and better airborne radars probably will be required. There is as yet no evidence that the Soviet Union is developing an airborne warning and control system (AWACS) capable of detecting and tracking aircraft at low altitudes over land.

Last year the Secretary of Defense announced a decision to readjust the primary air defense mission to encompass surveillance; peacetime control of U.S. airspace; and warning of a bomber, missile, or space attack. This decision was forced by tight budget constraints and the fact that without effective ABM defenses, air defenses are of limited value against potential aggressors armed with strategic missiles.

I would be less than candid if I were to leave you with the impression that there were no risks in this phased-down program. By mid-1976, our limited interceptor force will average about 18 years of age. The majority of the general purpose fighters are committed to other contingency plans and may not be available for air defense. We will be without terminal defense of high-value urban/industrial areas against either a bomber or cruise missile attack. It is, therefore, essential that the Congress provide funds to preserve the option of deploying on a timely basis a new interceptor (e.g., F-15 or F-14), a new SAM system (e.g., SAM-D), and AWACS for strategic defense should some significant change in the strategic structure become necessary in the future. These programs now are being provided for the general purpose forces, and they deserve consideration in the context of both that mission and the defense of the United States in time of crisis. They will make it possible to provide a pool of strategic and general purpose tri-Service assets from which resources could be drawn to provide air defense for threatened areas overseas as well as in the United States.

P.R.C. Strategic Forces

The dramatically increasing prominence of the Peoples' Republic of China (P.R.C.)

in foreign policy calculations is only partially reflected in her military program. There is a steady, almost painstaking quality about this relatively small, but carefully conceived, strategic program. A modest, but credible, nuclear retaliatory capability against the U.S.S.R. has been achieved, and this undoubtedly has influenced the decision to move ahead slowly, but deliberately, with the task of increasing the effectiveness of PRC nuclear forces. Emphasis is clearly on programs with long-range implications such as the construction of two of the world's most modern shipyards at Hu-lu-tao and Kuang-chi; impressive new facilities for producing large quantities of nuclear materials; solid propellant missiles; and R&D initiatives addressing advanced airframes and sophisticated engines. The temptation to yield to programs which would provide a more immediate strategic posture and perception of growing strength apparently has been resisted.

MRBM Force

This force is composed of a single-stage, liquid propellant, transportable system developed from Soviet models. The estimated range is about 600 nm. It can reach targets in the eastern U.S.S.R., peripheral nations, and some U.S. bases in the Far East. It is an obsolescent and cumbersome missile system with slow reaction time.

IRBM

This single-stage, liquid propellant ballistic missile presently is deployed at permanent sites. Its range is about 1,500 nm. During the past year, deployment of this system continued at a measured deliberate rate.

Limited Range ICBM

We now estimate that a limited range system could become operational during 1975. The program, however, continues to be a major enigma in the P.R.C.'s strategic weapons effort. When it reaches IOC, the P.R.C. will have a limited capability to cover targets in the European U.S.S.R.—possibly including Moscow. The P.R.C. may consider the creation of such a capability sufficient justification for deploying only a few of these largely untested missiles. The reasons behind this decision, of course, are unknown, but could include political, budgetary, and strategic factors.

ICBM

This is a large ICBM in the same class as the U.S. Titan and the Soviet SS-9. It could have a range of about 7,000 nm.

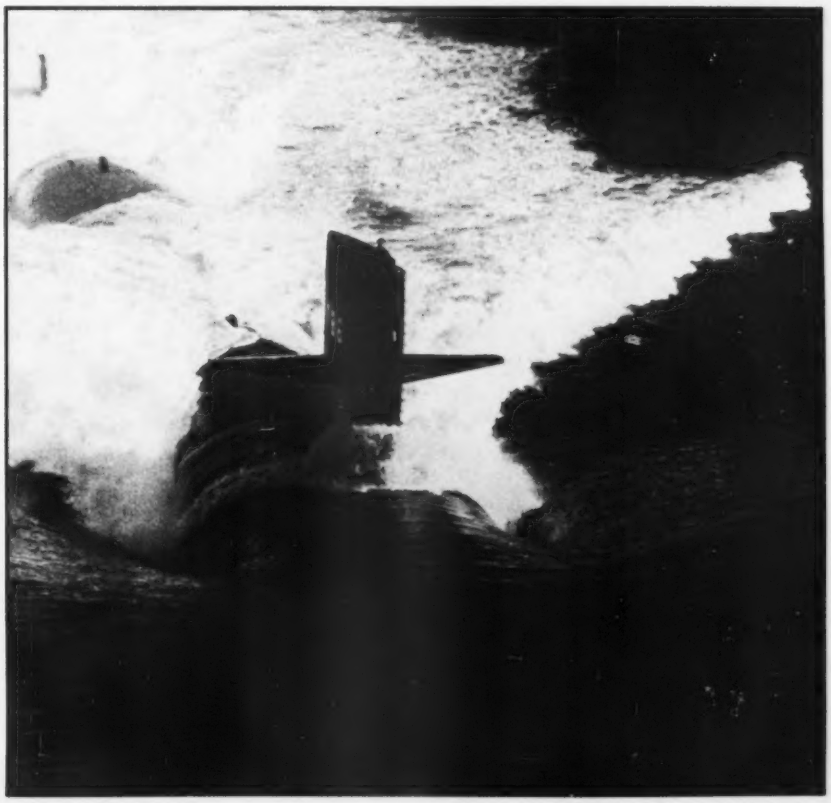
Full flight testing of this missile will require launches to a broad ocean impact area, probably in the Pacific, but possibly into the Indian Ocean. Analysis of such launches will provide much more data about characteristics of the system than we now have.

The P.R.C. has made a substantial investment over the past 15 years in research, developmental testing, and production facilities for both liquid and solid propellant missile systems. All current operational Chinese ballistic missile systems are liquid propellants. The P.R.C.'s continuing interest in facilities capable of developing and producing solid propellant rocket motors of various sizes up through intercontinental missiles has considerable significance for the future.

SLBM Systems

Although we continue to have difficulty in forecasting the rate of progress of the

The United States currently operates five classes of nuclear ballistic missile submarines. Here the USS L. Mendel Rivers undergoes sea trials off the Virginia Capes.



P.R.C. SLBM program, we remain convinced that the P.R.C. is determined to developed a submarine-launched ballistic missile and a modern nuclear-powered ballistic missile submarine. It is estimated that the first-generation Chinese SLBM will be a solid propellant system comparable in size to the early U.S. Polaris missiles.

TU-16 (Badger)

P.R.C. production of the TU-16 jet intermediate-range bomber began in 1968, but apparently ceased after some 60 of this Soviet-designed bomber were built. It is too early to determine whether production will resume. The TU-16 was first observed in the Soviet Union in 1953 and has a combat radius of 1,650 nm.

IL-28 (Beagle)

The IL-28 twin-jet short-range bomber is an old (1950) and vulnerable bomber, but the P.R.C. military planners still appear to consider it an important weapons system. More than 400 IL-28s are now operational. The P.R.C. may plan to equip some of these aircraft for a nuclear attack role. There are about 100 airfields in the P.R.C. from which IL-28s could operate. Staging from those airfields closest to the border would permit strategic operations against substantial portions of the contiguous Soviet Union, all of South Korea, parts of South Vietnam, and some of India. The limited range of the aircraft suggests that it also might be used in a theater support role within the P.R.C.

Strategic Defense

There continues to be no indication of any P.R.C. effort to deploy an ABM system. The P.R.C.'s air defense system remains subject to major weaknesses, including the severe shortage of all-weather interceptors, a limited number of SAM sites, and an outmoded air defense operating system.

The over 3,500 operational home defense interceptor force consists of MIG-17s, MIG-19s, and MIG-21s. The P.R.C. has produced a number of MIG-21s, but for reasons which are not yet fully clear to us, production was suspended, and only a small number of P.R.C.-produced MIG-21s are operational with the P.R.C. air force. The balance of the operational Fishbeds were Soviet-provided some years ago. The Chinese are now developing a new all-weather interceptor of Chinese design. The P.R.C. has a number of years of R&D effort invested in this aircraft. We had expected production of the MIG-19 to terminate, but we now believe it will continue until the new interceptor is introduced. A Chinese variant of the Soviet SA-2 missile remains the basic P.R.C. operational SAM system. The P.R.C. operates a relatively thin, well organized defense, short of the massive system deployed by the U.S.S.R. The P.R.C. has deployed a massive array of antiaircraft artillery pieces to defend key military and industrial facilities in addition to major population centers. Our experience in Vietnam and our observation of the Middle East lead us to give this capability more consideration than we may have 10 years ago. It may be concluded that, for the near term at least, the P.R.C. will rely on size, dispersal of industrial facilities, and a modest air defense program to be its basic active defense against air attack.

Summary

The Chinese now have a capability for nuclear strikes by missiles and bombers all around the periphery of the P.R.C. at distances up to 1,650 nm. Their capacity to produce fissionable materials is expanding. The Chinese have no present capability to attack the Continental United States directly and are unlikely to obtain one for at least several years.

Overall Strategic Balance

The P.R.C. force is small and relatively insignificant when compared to the intercontinental forces of the United States and the U.S.S.R. and we do not believe the P.R.C. will initiate a nuclear attack. Nevertheless, when one contemplates the impact of the two nuclear weapons thus far employed in conflict, and recognizes the simple fact that the P.R.C.'s capability is at least several orders of magnitude greater, a different appreciation suggests itself. This capability cannot be ignored by those charged with the defense of our Nation.

The relative strategic balance between the United States and the U.S.S.R. remains in an unstable equilibrium. Decisions already made in the Soviet Union and programs already in progress display massive momentum toward significant force increase and modernization. Only the pace and size of this effort remain uncertain. Apparently unconcerned about the economic burden of such spending, the Soviet leadership, in the face of detente or maybe to ensure it, continue to maximize their strategic power. To meet these challenges, we must continue to pursue diligently those programs designed to improve the ICBM force and ensure Minuteman survivability; maintain and improve the SSBN force, while protecting it at sea from a technological breakthrough; and significantly improve the manned bomber element of the Triad. We may be required to develop alternate basing modes for our land-based ICBMs in the event the U.S.S.R. does develop and deploy that combination of accuracy and yield which would threaten the survivability of Minuteman as currently deployed. We also must provide an option to increase the number of RVs and the throwweight of our present systems in the event such action becomes necessary to preserve the perception of equilibrium which, in the long run, may be as important as equilibrium itself and is essential for stability. In the meantime, we must continue a broad-based search for the technology necessary to insure the viability of our deterrent in the years ahead. These modest programs, requested by the President and described in more detail by the Secretary, will stabilize the balance within the framework of the Vladivostok understandings. These things we must do or we, at worst, will jeopardize our survival as a nation or, at best, forfeit the assurance that we will maintain that strength which has permitted three Presidents to say we "never fear to negotiate or negotiate out of fear."

COMMANDER'S DIGEST

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